

Form PTO-1390
(REV. 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER
9052-97U.S. APPLICATION NO. (If known, see 37 CFR
1.5)
To be assigned.

09/980927

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371INTERNATIONAL APPLICATION NO.
PCT/GB00/01841INTERNATIONAL FILING DATE
May 15, 2000PRIORITY DATE CLAIMED
May 20, 1999

TITLE OF INVENTION

Body Treatment Product

APPLICANT(S) FOR DO/EO/US

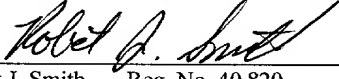
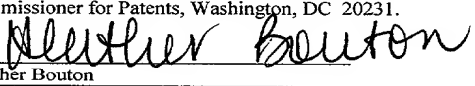
Caroline Maher; Anthony Johnson

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(l).
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
- ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☐ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4)
- ☒ Amendments to the claims of the International Application Under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
- ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
- ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
- ☐ An English language translation of the annexes of the International Preliminary Examination Report Under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4)
20. ☒ Other items or information: **International Search Report**

U.S. APPLICATION NO. (if known, see 37 CFR 1.53) 097 980927 To be assigned PCT/GB00/01841		INTERNATIONAL APPLICATION NO. ATTORNEY DOCKET NO 9052-97		
21. <input checked="" type="checkbox"/> The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492(a) (1) - (5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO..... \$1040.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO..... \$890.00 International preliminary examination fee 37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO..... \$740.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)..... \$710.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)..... \$100.00 ENTER APPROPRIATE BASE FEE AMOUNT = \$890.00 Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)). \$		CALCULATIONS PTO USE ONLY \$890.00		
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$
Total claims	52 - 20 =	32	x \$18.00	\$576.00
Independent Claims	1 - 3 =	0	x \$84.00	\$ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$280.00
TOTAL OF ABOVE CALCULATIONS =				\$1466.00
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2				\$733.00
SUBTOTAL =				\$733.00
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)). \$				
TOTAL NATIONAL FEE =				\$733.00
Fee for Recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$
TOTAL FEES ENCLOSED =				\$733.00
				Amount to be refunded: \$
				charged: \$
a. <input checked="" type="checkbox"/> A check in the amount of \$733.00 to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. 50-0220 in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-0220. A duplicate copy of this sheet is enclosed. d. <input type="checkbox"/> Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.				
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status. SEND ALL CORRESPONDENCE TO:				
 Robert J. Smith Reg. No. 40,820 Date: <u>November 15, 2001</u>				
CERTIFICATE OF EXPRESS MAILING Express Mail Label No. EL920740725 Date of Deposit: November 15, 2001 I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: BOX PCT, Attn: DO/EO/US, Commissioner for Patents, Washington, DC 20231.  Heather Bouton				



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PATENT TRADEMARK OFFICE

Variable	Mean	SD	Min	Max
Age	38.5	10.2	22	55
Gender	0.5	0.5	0	1
Marital Status	0.7	0.5	0	1
Education	12.5	1.5	9	16
Income	1500	500	500	3000
Health Status	0.8	0.4	0	1
Exercise Frequency	2.5	1.5	0	5
Stress Level	3.5	1.5	1	5
Sleep Quality	4.0	1.0	2	5
Dietary Habits	3.0	1.0	1	5
Work-Life Balance	3.5	1.0	1	5
Family Support	4.5	1.0	2	5
Community Involvement	2.0	1.0	0	4
Overall Well-being	4.0	1.0	2	5

IN THE UNITED STATES DESIGNATED OFFICE (DO/US)

Date: November 15, 2001

PRELIMINARY AMENDMENT

Prior to the examination of the above application and calculation of claim fees, please amend the above-identified application as follows. Attached hereto is a marked up version of the changes made to the specification and claims by the current amendment. The marked up version of the changes to specification and claims is captioned **“Version With Markings To Show Changes Made”**.

On page 1, line 1 of the specification, please insert the following:

- The present application claims priority under 35 U.S.C. § 371 from PCT Application No. PCT/GB00/01841 (published under PCT Article 21(2) in English), filed on May 15, 2000, which claims the benefit of Great Britain Application Serial Nos. 9911614.7 filed on May 20, 1999, 9926049.9 filed on November 4, 1999, and 0003189.8 filed on February 12, 2000, the disclosures of which are incorporated by reference herein in their entireties.-

Please enter the following new claims.

56. A body treatment product for applying electrical pulses to the skin, having at least one body contactor operable to apply electrical pulses to the body of a person being treated, a control unit operable to control the characteristics of the electrical pulses, and a body unit adapted to be worn on the person and which supports the at least one body contactor, wherein the at least one body contactor is connected to the body unit by linking means which is resiliently biased towards the body when the body unit is being worn by the person.

57. A body treatment product according to Claim 56, wherein the body unit is a head unit adapted to be worn on the head.

58. A body treatment product according to Claim 57, wherein the body contactor is a facial contactor.

59. A body treatment product according to Claim 56, further comprising an aid having a plurality of body contactors.

60. A body treatment product according to Claim 59, wherein each of the body contactors is supported by the body unit.

61. A body treatment product according to Claim 59, wherein each of the body contactors is a pad.

62. A body treatment product according to Claim 59, wherein each of the body contactors is a probe.

63. A body treatment product according to Claim 61, wherein each

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body contacting pad has an adhesive body contacting surface.

64. A body treatment product according to Claim 63, wherein each pad comprises an adhesive pad detachably connected to a mounting block.

65. A body treatment product according to Claim 64, wherein each adhesive pad is connected to the respective mounting block by means of a 'press-stud' fixing.

66. A body treatment product according to Claim 56, wherein said linking means is pivotally attached to the body unit.

67. A body treatment product according to Claim 56, wherein said linking means is pivotally attached to a respective body contactor.

68. A body treatment product according to Claim 56, wherein said linking means is formed of a plurality of parts.

69. A body treatment product according to Claim 68, wherein each part is pivotally attached to an adjacent part.

70. A body treatment product according to Claim 56, wherein said linking means is a resilient material.

71. A body treatment product according to Claim 70, wherein said linking means is a polyethylene extrusion.

72. A body treatment product according to Claim 59, wherein said linking means is formed as a box section.

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73. A body treatment product according to Claim 72, wherein each body contactor is slidable longitudinally of the respective link.

74. A body treatment product according to Claim 73, wherein each body contactor has at least 10mm of sliding movement.

75. A body treatment product according to Claim 74, wherein each body contactor has up to 15mm of sliding movement.

76. A body treatment product according to Claim 73, wherein each pad comprises an adhesive pad detachably connected to a mounting block, and wherein the sides of said linking means and the mounting blocks have co-operating tapers, and wherein each of the body contactors is a pad comprising an adhesive pad detachably connected to a mounting block..

77. A body treatment product according to Claim 59, wherein the control unit is operable to control the electrical pulses applied by the body contactors remotely.

78. A body treatment product according to Claim 77, wherein the control unit is operable to control the pulses by means of an infra-red signal.

79. A body treatment product according to Claim 77, wherein a signal receiving device is mounted on the body unit.

80. A body treatment product according to Claim 79, wherein the signal receiving device is operable to increment a parameter of the electrical pulse by a predetermined amount of receiving a signal from the control unit.

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81. A body treatment product according to Claim 80, wherein the parameter is the strength of the electrical pulses.

82. A body treatment product according to Claim 81, wherein the pulse voltage is between 50 and 25 volts.

83. A body treatment product according to Claim 80, wherein the parameter is the frequency of the electrical pulses.

84. A body treatment product according to Claim 80, wherein the parameter is the duration of the electrical pulses.

85. A body treatment product according to Claim 77, wherein the control unit is operable to control which body contactors are active.

86. A body treatment product according to Claim 77, wherein the control unit is adapted to be worn by the person being treated.

87. A body treatment product according to Claim 86, wherein the control unit is adapted to be worn on the wrist of the person.

88. A body treatment product according to Claim 87, wherein the control unit comprises a watch.

89. A body treatment product according to Claim 88, wherein the watch has a stop watch function.

90. A body treatment product according to Claim 88, wherein the watch

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has a timer function.

91. A body treatment product according to Claim 77, wherein the control unit comprises a computer.

92. A body treatment product according to Claim 91, wherein the control unit has a re-use delay function.

93. A body treatment product according to Claim 77, wherein the control unit is electrically connected to a power unit.

94. A body treatment product according to Claim 93, wherein the power unit is adapted to be worn by the person.

95. A body treatment product according to Claim 94, wherein the power unit is adapted to be worn on the belt of the person.

96. A body treatment product according to Claim 56, further comprising an audio system.

97. A body treatment product according to Claim 96, wherein the body unit comprises headphones.

98. A body treatment product according to Claim 97, wherein an audio device is connected to the headphones.

99. A body treatment product according to Claim 98, wherein the audio device is a radio.

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100. A body treatment product according to Claim 98, wherein the audio device is a tape or disc player.

101. A body treatment product according to Claim 98, wherein the audio device is adapted to be worn on a belt of the person.

102. A body treatment product according to Claim 96, wherein the control unit is operable to control the volume of the audio system.

103. A body treatment product according to Claim 96, wherein the control unit is operable to control an operating mode of the audio system.

104. A body treatment product according to Claim 96, wherein the audio system is coupled to the control unit whereby the control unit is operable to control the electrical pulses applied by at least one body contactor in response to an output signal from the audio system.

105. A body treatment product according to Claim 104, further comprising a signal device which varies a parameter of the electrical pulse in response to the output signal from the audio system on receiving a corresponding signal from the control unit.

106. A body treatment product according to Claim 105, wherein the audio system output signal is used to control the strength, frequency, waveform and/or duration of the electrical pulses.

107. A body treatment product according to Claim 105, wherein the electrical pulses are in synchronization with the audio system output signal.

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Please cancel Claims 1-55 without prejudice or disclaimer thereto.

REMARKS

Claims 56-107 are presented for examination. Claims 1-55 have been canceled without prejudice or disclaimer thereto. Applicants respectfully request substantive examination on the merits.

Respectfully submitted,



Robert J. Smith
Registration No. 40,820

Correspondence Address:



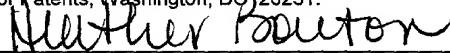
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PATENT TRADEMARK OFFICE

CERTIFICATE OF EXPRESS MAILING

"Express Mail" mailing label number EL920740725US
Date of Deposit: November 15, 2001

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Attn: BOX PCT, Commissioner for Patents, Washington, DC 20231.



Heather Bouton
Date of Signature: November 15, 2001

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Version With Markings To Show Changes Made

In the Specification:

On page 1, line 1 of the specification, please insert the following:

- **Cross-Reference to Related Applications**

The present application claims priority under 35 U.S.C. § 371 from PCT Application No. PCT/GB00/01841 (published under PCT Article 21(2) in English), filed on May 15, 2000, which claims the benefit of Great Britain Application Serial Nos. 9911614.7 filed on May 20, 1999, 9926049.9 filed on November 4, 1999, and 0003189.8 filed on February 12, 2000, the disclosures of which are incorporated by reference herein in their entireties.-

In the Claims:

Please enter the following new claims.

56. A body treatment product for applying electrical pulses to the skin, having at least one body contactor operable to apply electrical pulses to the body of a person being treated, a control unit operable to control the characteristics of the electrical pulses, and a body unit adapted to be worn on the person and which supports the at least one body contactor, wherein the at least one body contactor is connected to the body unit by linking means which is resiliently biased towards the body when the body unit is being worn by the person.

57. A body treatment product according to Claim 56, wherein the body unit is a head unit adapted to be worn on the head.

58. A body treatment product according to Claim 57, wherein the body contactor is a facial contactor.

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59. A body treatment product according to Claim 56, further comprising an aid having a plurality of body contactors.

60. A body treatment product according to Claim 59, wherein each of the body contactors is supported by the body unit.

61. A body treatment product according to Claim 59, wherein each of the body contactors is a pad.

62. A body treatment product according to Claim 59, wherein each of the body contactors is a probe.

63. A body treatment product according to Claim 61, wherein each body contacting pad has an adhesive body contacting surface.

64. A body treatment product according to Claim 63, wherein each pad comprises an adhesive pad detachably connected to a mounting block.

65. A body treatment product according to Claim 64, wherein each adhesive pad is connected to the respective mounting block by means of a 'press-stud' fixing.

66. A body treatment product according to Claim 56, wherein said linking means is pivotally attached to the body unit.

67. A body treatment product according to Claim 56, wherein said linking means is pivotally attached to a respective body contactor.

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68. A body treatment product according to Claim 56, wherein said linking means is formed of a plurality of parts.

69. A body treatment product according to Claim 68, wherein each part is pivotally attached to an adjacent part.

70. A body treatment product according to Claim 56, wherein said linking means is a resilient material.

71. A body treatment product according to Claim 70, wherein said linking means is a polyethylene extrusion.

72. A body treatment product according to Claim 59, wherein said linking means is formed as a box section.

73. A body treatment product according to Claim 72, wherein each body contactor is slidable longitudinally of the respective link.

74. A body treatment product according to Claim 73, wherein each body contactor has at least 10mm of sliding movement.

75. A body treatment product according to Claim 74, wherein each body contactor has up to 15mm of sliding movement.

76. A body treatment product according to Claim 73, wherein each pad comprises an adhesive pad detachably connected to a mounting block, and wherein the sides of said linking means and the mounting blocks have co-operating tapers, and wherein each of the body contactors is a pad comprising an adhesive pad detachably connected to a mounting block..

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77. A body treatment product according to Claim 59, wherein the control unit is operable to control the electrical pulses applied by the body contactors remotely.

78. A body treatment product according to Claim 77, wherein the control unit is operable to control the pulses by means of an infra-red signal.

79. A body treatment product according to Claim 77, wherein a signal receiving device is mounted on the body unit.

80. A body treatment product according to Claim 79, wherein the signal receiving device is operable to increment a parameter of the electrical pulse by a predetermined amount of receiving a signal from the control unit.

81. A body treatment product according to Claim 80, wherein the parameter is the strength of the electrical pulses.

82. A body treatment product according to Claim 81, wherein the pulse voltage is between 50 and 25 volts.

83. A body treatment product according to Claim 80, wherein the parameter is the frequency of the electrical pulses.

84. A body treatment product according to Claim 80, wherein the parameter is the duration of the electrical pulses.

85. A body treatment product according to Claim 77, wherein the control unit is operable to control which body contactors are active.

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86. A body treatment product according to Claim 77, wherein the control unit is adapted to be worn by the person being treated.

87. A body treatment product according to Claim 86, wherein the control unit is adapted to be worn on the wrist of the person.

88. A body treatment product according to Claim 87, wherein the control unit comprises a watch.

89. A body treatment product according to Claim 88, wherein the watch has a stop watch function.

90. A body treatment product according to Claim 88, wherein the watch has a timer function.

91. A body treatment product according to Claim 77, wherein the control unit comprises a computer.

92. A body treatment product according to Claim 91, wherein the control unit has a re-use delay function.

93. A body treatment product according to Claim 77, wherein the control unit is electrically connected to a power unit.

94. A body treatment product according to Claim 93, wherein the power unit is adapted to be worn by the person.

95. A body treatment product according to Claim 94, wherein the power

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unit is adapted to be worn on the belt of the person.

96. A body treatment product according to Claim 56, further comprising an audio system.

97. A body treatment product according to Claim 96, wherein the body unit comprises headphones.

98. A body treatment product according to Claim 97, wherein an audio device is connected to the headphones.

99. A body treatment product according to Claim 98, wherein the audio device is a radio.

100. A body treatment product according to Claim 98, wherein the audio device is a tape or disc player.

101. A body treatment product according to Claim 98, wherein the audio device is adapted to be worn on a belt of the person.

102. A body treatment product according to Claim 96, wherein the control unit is operable to control the volume of the audio system.

103. A body treatment product according to Claim 96, wherein the control unit is operable to control an operating mode of the audio system.

104. A body treatment product according to Claim 96, wherein the audio system is coupled to the control unit whereby the control unit is operable to control the electrical pulses applied by at least one body contactor in response

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to an output signal from the audio system.

105. A body treatment product according to Claim 104, further comprising a signal device which varies a parameter of the electrical pulse in response to the output signal from the audio system on receiving a corresponding signal from the control unit.

106. A body treatment product according to Claim 105, wherein the audio system output signal is used to control the strength, frequency, waveform and/or duration of the electrical pulses.

107. A body treatment product according to Claim 105, wherein the electrical pulses are in synchronization with the audio system output signal.

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BODY TREATMENT PRODUCT

This invention relates to body treatment products, and in particular to devices for toning and massaging the muscles, especially the facial muscles.

It has been established that if a person's muscles are exercised, those muscles will grow and increase in strength, or at least any tendency to reduce in size and lose strength is minimised. Such exercising tones the muscles and reduces muscle tension. On that basis, if the facial muscles just below the surface of the skin can be suitably exercised or stimulated, then they can be strengthened and the growth of muscle mass will be encouraged. This can be a significant factor in maintaining, as a person ages, a taut, smooth-looking skin with a minimum of lines and wrinkles. This is a much sought after objective, particularly in the facial area, on which a great deal of time and money is spent within the beauty industry.

There are many known techniques and devices available which purport to achieve at least some measure of success in achieving these objectives. Surgical techniques are intrusive, can be painful and are generally very costly. Non-surgical techniques and the various known devices for performing them often have associated problems and very unpredictable results. Such devices are intended to tone and massage the muscles and are known as muscle stimulators. One such device for stimulating the facial muscles which is intended to achieve the above objective without many of the problems associated with the other techniques and devices is described in GB-2234965A. The muscle restructuring system device described in GB 2234965A applies a train of electrical pulses to the skin at a frequency which activates muscle contraction. For toning purposes, the pulses are mono-phase square waves at a voltage of 0 to 80 volts at a frequency of 20 to 80 Hz with a pulse length of 200 to 600 μ secs. For massage, this output, at a constant 15 Hz, is superimposed on a notional slow sine wave at a frequency of about 0.3 Hz at a voltage of 0 to 15 volts. The facial probes and pads are connected by electrical leads to a control unit for varying the pulse strength, frequency and duration. Such a device and the other known muscle stimulator devices are more particularly suited to salon use although attempts have been made to adapt the device for home use. In either case, several pads and probes have to be attached to the skin, for example by taping. For this reason, and because of the relatively cumbersome control unit and the existence of the multitude of leads to the facial probes and pads, it is necessary that the person being treated remains seated throughout the period of treatment. This may be up to 30 minutes at a time. Furthermore, there is a tendency for the leads to become entangled, which can result in one or more probes or pads becoming detached from the face.

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Another device is described in US-A.3762396. In this case electrical pulses are applied to a patient's face through electrodes attached to a headband worn by the patient. At the same time, through headphones, the patient can receive an audio signal from an audio system. However, the system is only suitable for surgery or hospital use since the patient is obliged to remain in a fixed position near to the audio system throughout the period of treatment, and is not in control of the electrical pulses or the audio signal.

The objects of the present invention are to provide a body treatment product adapted to stimulate the muscles which avoids, at least to a significant extent, the problems associated with the known devices and one which is equally suitable for home or salon use. It is a further object of the present invention to provide a muscle stimulator which allows the user more easily to pursue other activities during its use than is the case with known devices.

The invention provides a body treatment product for applying electrical pulses to the skin, having at least one body contactor operable to apply electrical pulses to the body of a person being treated, a body unit adapted to be worn on the person and which supports the at least one body contactor, an audio system operable to provide an output signal, a control unit operable to receive the output signal, provide a corresponding signal and control the characteristics of the electrical pulses, whereby a parameter of the electrical pulse is varied in response to the output signal from the audio system in accordance with the corresponding signal from the control unit. The body unit may be a head unit adapted to be worn on the head, in which case the body contactor may be a facial contactor. The body treatment product may have a plurality of body contactors, each of which is supported by the body unit. The body contactors may be pads or probes. Body contacting pads may have an adhesive body contacting surface. The pads may comprise an adhesive pad detachably connected to a mounting block. The adhesive pad may be connected to the mounting block by means of a 'press-stud' fixing.

Each body contactor may be supported by the body unit by means of a link. Each link may be pivotally attached to the body unit, and may be pivotally attached to a respective body contactor. Each link may be formed of a plurality of parts, each part pivotally attached to an adjacent part. Each link may be of a resilient material, and may be a polyethylene extrusion. Links on opposed sides of the body unit may be resiliently biased towards each other. Each link may be formed as a box section. Each body contactor may be slidable longitudinally of the respective link to which it is attached, and may have at least 10 mm, preferably up to 15

mm, of sliding movement. The sides of the links and the mounting blocks may have co-operating tapers.

The control unit may be operable to control the electrical pulses applied by the body contactors remotely, preferably by means of an infra-red signal. A signal receiving device may be mounted on the body unit. The signal receiving device may vary a parameter of the electrical pulse in response to the output signal from the audio system on receiving a corresponding signal from the control unit. The signal receiving device may increment a parameter of the electrical pulse by a predetermined amount on receiving a signal from the control unit. The control unit may be operable to control the strength, frequency and/or the duration of the electrical pulses, and may control which body contactors are active. The pulse voltage may be between 50 and 25 volts. The control unit may be adapted to be worn by the person being treated, and may be adapted to be worn on the wrist of the person. The control unit may comprise a watch, which may have a stop watch and/or a timer function. Alternatively the control unit may comprise a computer, which may operate in response to a program on a disc. The control unit may have a re-use delay function. The control unit may be electrically connected to a power unit, and the power unit may be adapted to be worn by the person. The power unit may be adapted to be worn on the belt of the person.

The body unit may comprise headphones. The audio device may be connected to the headphones, and the audio device may be a radio and/or a tape or disc player. The audio device may be adapted to be worn on a belt of the person. The control unit may be operable to control the volume and the operating mode of the audio device, e.g. radio/cassette, radio programme. The audio system output signal may be used to control the strength, frequency, waveform and/or the duration of the electrical pulses, which may be in synchronisation with audio system output signal for an enhanced effect of the facial stimulation.

The invention will now be further described with reference to the accompanying drawings in which:

Fig. 1 is an illustration of one embodiment,

Fig. 2 is an enlarged view of an arm of the product of Fig. 1,

Fig. 3 is a scrap section of the arm of Fig. 2, and

Fig. 4 is a schematic of the control system

Referring now to Fig 1 there is shown a muscle stimulator 10 which has a head unit 11 consisting of a resilient head band 12 which is worn over the head of a person undergoing treatment with the muscle stimulator 10 in the manner of headphones or a personal stereo

radio/cassette player. To each end of the head band 12 is attached an ear pad 13 and one end of a link 14. At the other end of each link 14 is a facial contactor 15, which may be in the form of an adhesive pad which is about 10 mm square, or a probe. Also attached to one end of the head band 12 is an infra-red signal receiver 16 which is individually electrically connected to the pads or probes 15. An electrical lead 17 connects the receiver 16 with a battery pack power unit 18. The battery pack unit 18 has a clip 19 by means of which it may be worn on a belt around the person's waist. A control unit 20 which is adapted to be worn on the person's wrist is combined with a watch 21, preferably having a stop watch and/or timer function, for example 5 min countdown for muscle stimulation, 15 min for massage. The control unit 20 generates infra-red signals which are received by the signal receiver 16. Another lead 22 may be connected to the battery pack power unit 18 to provide power to motor point/massage heads (not shown), and an audio lead 23 may be connected to a personal stereo radio/cassette player 40 (Fig. 4).

One of the links 14 is shown in greater detail in Fig. 2. In this case, each link 14 consists of two parts, a primary link 24 and a secondary link 25 which are articulated to each other at a joint 26 so that relative movement of up to 180° can take place as shown by arrow A. Such relative positioning may be continuously variable or there may be co-operating formations in the joint 26 to provide pre-set relative positioning at, for example, every 10° within the range of movement. The primary link 24 is similarly rotatably attached to the signal receiver 16, ear pad 13 and head band 12, so as to be positionally adjustable relative thereto as shown by arrow B. A face contacting adhesive pad 15 is mounted on the secondary link 25, and a second face contacting adhesive pad 27 may be mounted on the primary link 24. These pads 15, 27 are slidable along the respective links 24, 25 as shown by arrows C, and as shown in greater detail in Fig. 3. The links 24, 25 are of T-shaped box form in cross-section and are mounted and shaped such that the pads 15 must be moved apart from each other in order to place them on the face. The links 24, 25 are preferably made from a polyethylene extrusion to provide springiness to grip the person's face. Alternatively or in addition the links 24 may be resiliently biased towards each other by means of springs 41. The outer part 28 of the T-section provides a trough for the electrical wires 36 (Fig. 4) from the receiver 16 to the pads 15, 27. On the inner face of the links 24, 25 is a slot 29 through which the T-shaped mounting block 30 protrudes so that the mounting block 30 can slide longitudinally of the link 24, 25. Each pad 15, 27 is removably attached to its mounting block 30 by means of a 'press-stud' attachment 31 which also has concentric electrical contacts 32, 33. The sides of the slot 29 and the protruding part of the mounting block 30 are correspondingly tapered. Pushing the link 24, 25 and the pad 15, 27 together has the effect of locating the mounting block 30 in the link 24, 25, whilst pulling the link 24, 25 and pad 15, 27 in the opposite direction releases the

mounting block 30 from the slot 29 to allow the pad 15, 27 to be moved along the link 24, 25. The travel of the pads 15, 27 along the links 24, 25 may be up to 15 mm. By moving the pads 15, 27 along the links 24, 25 and swivelling the links 24, 25 relative to each other and the head unit 11 allows the person to position the pads 15, 27 at the desired places on the face. By pulling the links 14 apart, thereby releasing the links 14 from the pads 15, 27, the head unit 11 and links 14 can be removed from the head, and the pads 15, 27 can then be removed from the face individually.

Referring now to Fig. 4, the power unit 18 comprises a battery pack 34 and a pulse generator 35 to which it is connected. The generated pulses pass along the lead 17 to the receiver 16 on the head unit 11. From the receiver 16 the pulses are relayed to the pads 15, 27 via the wires 36. The controls 37 (Fig. 1) of the control unit 20 create a first infra-red (IR) or hard wired link 38 to the pulse generator 35 to select the type of treatment, i.e. toning or massage, and control the frequency and strength of the pulses. The control unit 20 may be the above described watch device 21 or may be a computer, which operates in response to a program on a disc. With little pressure between the pads 27 and the person's face, 50 volt pulses are required to provide effective stimulation. However, with sufficient pressure between the pads 27 and the face as provided by the resilience of the links 24, 25 and/or the springs 41, the pulse voltage may be reduced to 25 volts for satisfactory stimulation. A second IR link 39 to the receiver 16 or hard wired link via the power unit 18, is provided to control which pads 15, 27 are active. The watch 21 or computer 20 may also display the chosen settings. An audio unit 40, e.g. a personal radio/cassette player may be connected to the pack 18 by audio lead 23, or the computer 20 may be used, so that the output of the audio unit 40 or the sound card of the computer 20 can be relayed to the head unit 11 and the ear pad 13 via combined lead 17, thereby allowing the person to listen to the audio unit 40 or music played by computer 20 whilst being massaged, and also restricting the number of leads to the head unit 11. Control of the audio unit 40 may be by controls on the unit itself, and/or by the controls 37 of the controller 20. In addition, the output from the audio system 40 or computer 20 when received by the control unit 18 may be used to control the electrical pulses applied by the pads 15, 27 in response to and either in or out of synchronisation with that output signal as desired. The signal receiving device 16 may vary a parameter of the electrical pulse in response to the output signal from the audio system 40 or computer 20 on receiving a corresponding signal from the control unit 18. The output signal from the audio system 40 or computer 20 may be used to control the strength, frequency, waveform and/or the duration of the electrical pulses applied to the person by the pads 15, 27.

By means of the invention a facial muscle stimulator is provided which is convenient for home as well as for salon use. The person undergoing treatment can move around during the treatment and perform other activities such as domestic chores, using exercise apparatus, walking, travelling by vehicle or the like. The person can also listen to music, exercise instructions or other radio programme, and when music is listened to, the facial stimulation may be in synchronisation with the music for an enhanced effect. At all times the person has the facility to control the stimulation or massage applied, thereby reducing the risk of excess stimulation or overuse.

Other embodiments of apparatus within the scope of the invention will be readily apparent to persons skilled in the art. For example the links 14 may comprise one part or more than two mutually articulated parts. The audio unit 40 may be combined with the power unit 18, and/or may comprise a mini-disc player. Instead of the belt clip 19, a belt or strap may be attached to the battery pack 18. The sides of the box section of the links 24, 25 may be tapered to co-operate with the tapered sides of the enclosed part of the mounting blocks 30 instead of the sides of the slot 29 and the protruding part. The head unit 11 may comprise a hat, for example a baseball cap, instead of the head band 12. Although a facial muscle stimulator 10 is illustrated and described, the apparatus could be adapted for stimulation of other muscles of the body, the head unit 11 being replaced by a body unit adapted to be worn by the person about some other part of his/her body, e.g. around the waist for toning/massaging tummy muscles.

WHAT WE CLAIM IS

1. A body treatment product (10) for applying electrical pulses to the skin, having at least one body contactor (15) operable to apply electrical pulses to the body of a person being treated, a body unit (11) adapted to be worn on the person and which supports the at least one body contactor (15), an audio system (40) operable to provide an output signal, a control unit (20) operable to receive the output signal, provide a corresponding signal and control the characteristics of the electrical pulses, whereby a parameter of the electrical pulse is varied in response to the output signal from the audio system (40) in accordance with the corresponding signal from the control unit (20).
2. A body treatment product according to claim 1, wherein the body unit (11) is a head unit (12) adapted to be worn on the head.
3. A body treatment product according to claim 2, wherein the body contactor (15) is a facial contactor.
4. A body treatment product according to any one of claims 1 to 3, comprising a plurality of body contactors (15).
5. A body treatment product according to claim 4, wherein each of the body contactors (15) is supported by the body unit (11).
6. A body treatment product according to claim 4 or claim 5, wherein each of the body contactors (15) is a pad.
7. A body treatment product according to claim 4 or claim 5 wherein each of the body contactors (15) is a probe.
8. A body treatment product according to claim 6, wherein each body contacting pad (15) has an adhesive body contacting surface.
9. A body treatment product according to claim 8, wherein each pad (15) comprises an adhesive pad (15) detachably connected to a mounting block (30).
10. A body treatment product according to claim 9, wherein each adhesive pad (15) is connected to the respective mounting block (30) by means of a 'press-stud' fixing (31).

11. A body treatment product according to any one of claims 4 to 10, wherein each body contactor (15) is supported by the body unit (11) by means of a link (14).
12. A body treatment product according to claim 11, wherein each link (14) is pivotally attached to the body unit (11).
13. A body treatment product according to claim 11 or claim 12, wherein each link (14) is pivotally attached to a respective body contactor(15).
14. A body treatment product according to any one of claims 11 to 13, wherein each link (14) is formed of a plurality of parts (24, 25).
15. A body treatment product according to claim 14, wherein each part (24) is pivotally attached to an adjacent part (25).
16. A body treatment product according to any one of claims 11 to 15, wherein each link (14) is of a resilient material.
17. A body treatment product according to claim 16, wherein each link (14) is a polyethylene extrusion.
18. A body treatment product according to any one of claims 11 to 15, wherein links (14) on opposed sides of the body unit (11) are resiliently biased towards each other.
19. A body treatment product according to any one of claims 11 to 18, wherein each link (14) is formed as a box section.
20. A body treatment product according to claim 19, wherein each body contactor (15) is slidable longitudinally of the respective link (14).
21. A body treatment product according to claim 20, wherein each body contactor (15) has at least 10 mm of sliding movement.
22. A body treatment product according to claim 21, wherein each body contactor (15) has up to 15 mm of sliding movement.

23. A body treatment product according to claim 20 when dependent on claim 9, wherein the sides of the links (14) and the mounting blocks (30) have co-operating tapers.
24. A body treatment product according to any one of claims 4 to 23, wherein the control unit (20) is operable to control the electrical pulses applied by the body contactors (15) remotely.
25. A body treatment product according to claim 24, wherein the control unit (20) is operable to control the pulses by means of an infra-red signal.
26. A body treatment product according to claim 24 or claim 25, wherein a signal receiving device (16) is mounted on the body unit (11).
27. A body treatment product according to claim 26, wherein the signal receiving device (16) varies a parameter of the electrical pulse in response to the output signal from the audio system (40) on receiving the corresponding signal from the control unit (20).
28. A body treatment product according to any one of claims 24 to 27, wherein the signal receiving device (16) is operable to increment a parameter of the electrical pulse by a predetermined amount on receiving a signal from the control unit (20).
29. A body treatment product according to claim 28, wherein the parameter is the strength of the electrical pulses.
30. A body treatment product according to claim 29, wherein the pulse voltage is between 50 and 25 volts.
31. A body treatment product according to claim 28, wherein the parameter is the frequency of the electrical pulses.
32. A body treatment product according to any one of claims 28 to 31, wherein the parameter is the duration of the electrical pulses.
33. A body treatment product according to any one of claims 24 to 32, wherein the control unit (20) is operable to control which body contactors (15) are active.

34. A body treatment product according to any one of claims 24 to 33, wherein the control unit (20) is adapted to be worn by the person being treated.
35. A body treatment product according to claim 34, wherein the control unit (20) is adapted to be worn on the wrist of the person.
36. A body treatment product according to claim 35, wherein the control unit (20) comprises a watch (21).
37. A body treatment product according to claim 36, wherein the watch (21) has a stop watch function.
38. A body treatment product according to claim 36 or claim 37, wherein the watch (21) has a timer function.
39. A body treatment product according to any one of claims 24 to 33, wherein the control unit (20) comprises a computer.
40. A body treatment product according to any one of claims 36 to 38, wherein the control unit (20) has a re-use delay function.
41. A body treatment product according to any one of claims 24 to 39, wherein the control unit (20) is electrically connected to a power unit (18).
42. A body treatment product according to claim 41, wherein the power unit (18) is adapted to be worn by the person.
43. A body treatment product according to claim 42, wherein the power unit (18) is adapted to be worn on a belt of the person.
44. A body treatment product according to any one of claims 1 to 43, wherein the body unit (11) comprises headphones (13).
45. A body treatment product according to claim 44, wherein the audio system (40) is connected to the headphones (13).

46. A body treatment product according to claim 45, wherein the audio system (40) is a radio.
47. A body treatment product according to claim 45 wherein the audio system (40) is a tape or disc player.
48. A body treatment product according to any one of claims 45 to 47, wherein the audio system (40) is adapted to be worn on a belt of the person.
49. A body treatment product according to any one of claims 44 to 48, wherein the control unit (20) is operable to control the volume of the audio system (40).
50. A body treatment product according to any one of claims 44 to 49, wherein the control unit (20) is operable to control the operating mode of the audio system (40).
51. A body treatment product according to claim 50, wherein the audio system (40) output signal is used to control the strength, frequency, waveform and/or the duration of the electrical pulses.
52. A body treatment product according to claim 51, wherein the electrical pulses are in synchronisation with audio system (40) output signal.

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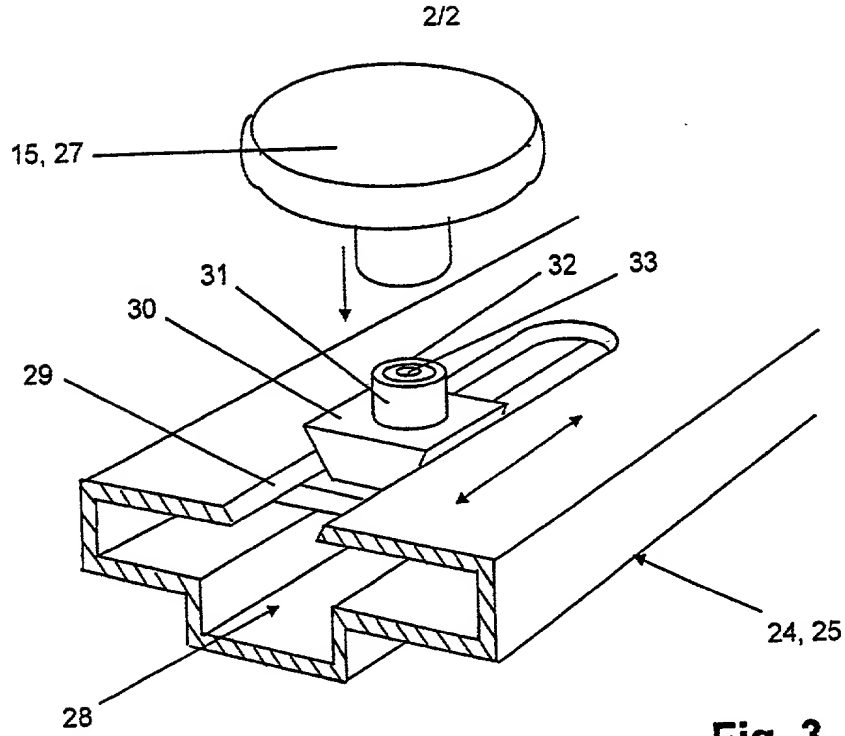


Fig. 3

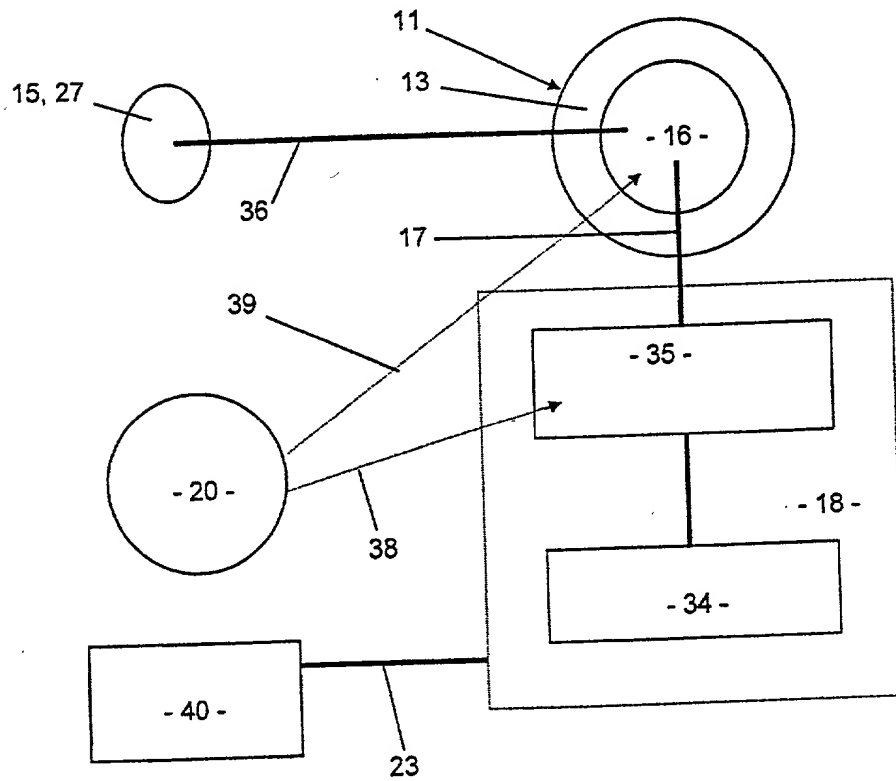


Fig. 4

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

Attorney Docket No. 9052-97

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name. ?

I believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **BODY TREATMENT PRODUCT**,

the specification of which

☐ is attached hereto

OR

☒ was filed on November 15, 2001 as United States Application No. 09/980,927 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56, including material information that became available between the filing date of the prior application and the National or PCT International filing date of the continuation-in-part application, if applicable.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed.

9911614.7	Great Britain	05/20/1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Number	Country	MM/DD/YYYY Filed	Priority Claimed
9926049.9	Great Britain	11/04/1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Number	Country	MM/DD/YYYY Filed	Priority Claimed
0003189.8	Great Britain	02/12/2000	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Number	Country	MM/DD/YYYY Filed	Priority Claimed

202140-22608660

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

None	None
Application Number(s)	Filing Date (MM/DD/YYYY)
	None
Application Number(s)	Filing Date (MM/DD/YYYY)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or § 365(c) of any PCT international application designating the United States of America, listed below.

PCT/GB00/01841	5/15/2000	Published
Appln. Serial No.	Filing Date	Status Patented/Pending/Abandoned

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following registered attorney(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. I also appoint the following registered attorney(s) to represent me before all competent International Authorities in connection with any and all international applications filed by me with an appropriate receiving office claiming priority to the U.S. application. I also appoint the following registered attorney(s) to make or receive payment on my behalf in connection with the filing of such international applications.

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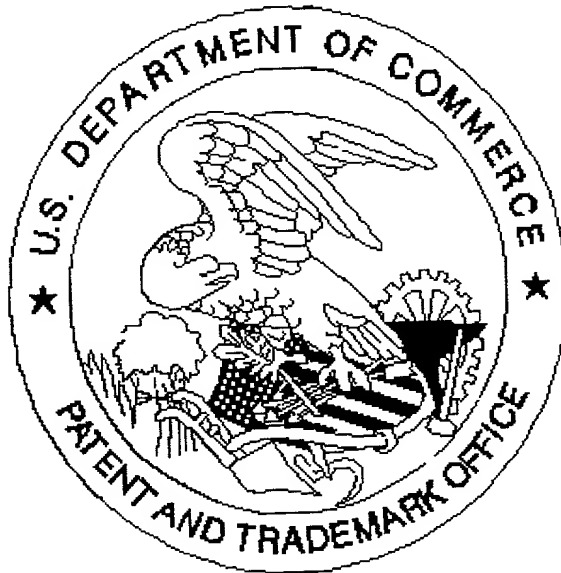
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